Name: _____

IB BIOLOGY
Fermentation Lab

Aim: In this lab you will investigate **the effect of different sucrose solutions on the rate of fermentation.** To do this experiment, each one of the students will carry out two trials of one of the concentrations specified below and the class data will be pooled at the end. The volume of CO_2 produced will be measured to determine the rate of reaction.

Materials available:

- 1x 1000ml beaker
- 1x 250ml beaker
- 1x 250ml flask
- rubber tubing
- rubber stopper
- 1x 100ml graduated cylinder (±1ml)
- 3g of dry yeast per trial
- sucrose solutions: 0%, 2%, 4%, 6%, 8% and 10%
- balance (±0.01g)
- stop watch or clear view of a clock with a second hand (± 1sec)
- plastic spoon
- glass rod
- Petri dish
- wire gauze

Procedures:

1) Fill the 1000ml beaker with 800ml of water.
2) Fill the 100ml graduated cylinder with water. Cover the opening tightly with your hands. Quickly invert the cylinder and place the opening in the tub, beneath the surface of the water. The graduated cylinder should now be upside down, full of water (in a way you can read the amount of gas inside) and with its opening under the surface of the water in the beaker. Place the empty flask near the beaker and insert the rubber tubing inside the inverted cylinder. Keep this aside while you make the solutions.
3) Use the small beaker to measure 100mL of a specific sucrose concentration. Place this solution in the empty flask.
4) Place the Petri dish on the scale and reset to disregard its mass. Measure 3g of yeast.
5) Use the funnel to add the yeast to the sugar solution. Mix both really well for 1 minute using the glass rod. Seal the flask tightly with the rubber stopper and place it on top of the wire gauze.
6) Wait 5 minutes and start timing. Read the water volume in the inverted graduated cylinder. This will be your reference. Disregard any bubbles that appear before 5 minutes.
7) Record how much gas is produced every minute for 10 minutes by subtracting the new volume of water from the previous volume measured.
8) Rinse the flask well to remove any yeast/sugar left. Re-fill your 100ml graduated cylinder and place it back inside the beaker.
9) Repeat all the steps one more time.
10) Clean up your materials when you are done.
11) Make sure you copy the data of each one of the students before you leave. You must use the data YOU collected in your analysis. Highlight/identify the data **YOU** collected in your table.

- We will have 5 trials of each one of the 5 concentrations, adding up to 25 trials. One student from each group will also run a control trial with no sugar (0% sugar solution).